



Agricultural Research Division High-Impact Research Publication Awards

The Agricultural Research Division (ARD) introduced the High Impact Research Publications Award to recognize and celebrate the outstanding and transformative research conducted by our faculty that is impacting Nebraska and the world.

This award recognizes the scientific contributions published in national and international peer-reviewed journals that address global challenges, including critical issues facing agriculture, natural resources, environment, climate, human health and well-being, the economy, and society.

This year, a total of 25 publications have emerged as exemplars of scientific excellence in these important domains, with 5 receiving special recognition. ARD hopes that these recognized examples will continue to inspire faculty as they thrive towards excellence in their respective

AGRICULTURAL ECONOMICS

Chennak A., K. Giannakas, T. Awada. "On the Economics of the Transition to a Circular Economy." *Circular Economy and Sustainability* (2023). <https://doi.org/10.1007/s43615-023-00297-8>.

BIOCHEMISTRY

Smith N, Dasgupta M, Wych DC, Dolamore C, Sierra RG, Lisova S, Marchany-Rivera D, Cohen AE, Boutet S, Hunter MS, Kupitz C, Poitevin F, Moss FR 3rd, Mittan-Moreau DW, Brewster AS, Sauter NK, Young ID, Wolff AM, Tiwari VK, Kumar N, Berkowitz DB, Hadt RG, Thompson MC, Follmer AH, Wall ME, Wilson MA. *Science Advances*. 2024 Mar 29;10(13):eadk7201. doi:10.1126/sciadv.adk7201. Epub 2024 Mar 27. PMID: 38536910.

BIOLOGICAL SYSTEMS ENGINEERING

Abia Katimbo, Daran R. Rudnick, Jingwen Zhang, Yufeng Ge, Kendall C. DeJonge, Trenton E. Franz, Yeyin Shi, Weizhen Liang, Xin Qiao, Derek M. Heeren, Isa Kabenge, Hope Njuki Nakabuye, Jiaming Duan, Evaluation of artificial intelligence algorithms with sensor data assimilation in estimating crop evapotranspiration and crop water stress index for irrigation water management, *Smart Agricultural Technology*, Volume 4, 2023, 100176, ISSN 2772-3755, <https://doi.org/10.1016/j.atech.2023.100176>.

FOOD SCIENCE

Feng X^{^*}, Zheng J^{^*}, Irisarri I^{*}, Yu H, Zheng B[^], Ali Z, de Vries S, Keller J, Fürst-Jansen J, DadrasA, Zegers J, Rieseberg TP, Ashok AD, Darienko T, Bierenbroodspot MJ, Gramzow L, Petroll R, Haas FB, Fernandez-Pozo N, Nousias O[^], Li T[^], Fitzek E[^], Grayburn WS, Rittmeier N, Permann C, Rümpler F, Archibald JM, Theißen G, Mower JP, Lorenz M, Buschmann H, von Schwartzberg K, Boston L, Hayes RD, Daum C, Barry K, Grigoriev IV, Wang X, Li FW, Rensing SA, Ben-Ari J, Keren N, Mosquna A, Holzinger A, Delaux PM, Zhang C, Huang J, Mutwil M, de Vries J#, Yin Y#. Genomes of multicellular algal sisters to land plants illuminate signaling network evolution, *Nature Genetics*, 2024 May;56(5):1018-1031, <https://www.nature.com/articles/s41588-024-01737-3>.

SCHOOL OF NATURAL RESOURCES

Corman, J.R. 2025. Calcium carbonate and phosphorus interactions in inland waters. *Limnology and Oceanography Letters* 10(2):158-178.

AGRICULTURAL ECONOMICS

Chennak A., K. Giannakas, T. Awada. "On the Economics of the Transition to a Circular Economy." *Circular Economy and Sustainability* (2023). <https://doi.org/10.1007/s43615-023-00297-8>.

DeLay, N.D. and Walters, C.G., 2025. Mapping agents: A spatial economic analysis of agent location in the Federal Crop Insurance Program. *American Journal of Agricultural Economics*, 107(4), pp.1152-1182.

ANIMAL SCIENCE

Hess MK, Mersha A, Ference SS, Nafziger SR, Keane JA, Fuller AM, Kurz SG, Sutton CM, Spangler ML, Petersen JL, Cupp AS. Puberty classifications in beef heifers are moderately to highly heritable and associated with candidate genes related to cyclicity and timing of

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Speer, H.F., K.H. Wilke, and M.E. Drewnoski. 2024. Effects of vitamin A supplementation on liver retinol concentrations of beef cows and their calves managed in confinement. *Appl. Anim. Sci.* 40:619-626.

BIOCHEMISTRY

Park K, Quach T, Clark TJ, Kim H, Zhang T, Wang M, Guo M, Sato S, Nazarens TJ, Blume R, Blume Y, Zhang C, Moose SP, Swaminathan K, Schwender J, Clemente TE, Cahoon EB. Development of vegetative oil sorghum: From lab-to-field. *Plant Biotechnol J*. 2025 Feb;23(2):660-673. doi: 10.1111/pbi.14527. Epub 2024 Nov 30. PMID: 39615039; PMCID: PMC11772366.

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BIOLOGICAL SYSTEMS ENGINEERING

Abia Katimbo, Daran R. Rudnick, Jingwen Zhang, Yufeng Ge, Kendall C. DeJonge, Trenton E. Franz, Yeyin Shi, Wei-zhen Liang, Xin Qiao, Derek M. Heeren, Isa Kabenge, Hope Njuki Nakabuye, Jiaming Duan, Evaluation of artificial intelligence algorithms with sensor data assimilation in estimating crop evapotranspiration and crop water stress index for irrigation water management, Smart Agricultural Technology, Volume 4, 2023, 100176, ISSN 2772-3755, <https://doi.org/10.1016/j.atech.2023.100176>.

Silva, G.R.d.; Liska, A.J.; Bayer, C. Cover Crops Can Reduce Greenhouse Gas Emissions from No-Till Maize in Southern Brazil: Insights from a Long-Term Field Experiment. *Agronomy* 2025, 15, 267. <https://doi.org/10.3390/agronomy15020267>

ENTOMOLOGY

Ranabhat, S.3#, Domingue, M.J., Lebar, L., Bingham, G.V., Zhu, K.Y., Morrison, W.R. III (2023). *Disruption of semiochemical-mediated movement by the immature Trogoderma variabile and T. inclusum after exposure to long-lasting insecticide-incorporated netting. Pest Management Science* 80(4):1702-1716. <https://doi.org/10.1002/ps.7903>

FOOD SCIENCE

Feng X[^]*, Zheng J[^]*, Irisarri I^{*}, Yu H, Zheng B[^], Ali Z, de Vries S, Keller J, Fürst-Jansen J, DadrasA, Zegers J, Rieseberg TP, Ashok AD, Darienko T, Bierenbroodspot MJ, Gramzow L, Petroll R, Haas FB, Fernandez-Pozo N, Nousias O[^], Li T[^], Fitzek E[^], Grayburn WS, Rittmeier N, Permann C, Rümpler F, Archibald JM, Theißen G, Mower JP, Lorenz M, Buschmann H, von Schwartzberg K, Boston L, Hayes RD, Daum C, Barry

K, Grigoriev IV, Wang X, Li FW, Rensing SA, Ben-Ari J, Keren N, Mosquna A, Holzinger A, Delaux PM, Zhang C, Huang J, Mutwil M, de Vries J#, Yin Y#. Genomes of multicellular algal sisters to land plants illuminate signaling network evolution, *Nature Genetics*, 2024 May;56(5):1018-1031, <https://www.nature.com/articles/s41588-024-01737-3>.

Alavi, F., and Ciftci, O. (2024). Green and singlestep simultaneous composite starch aerogel formation-high bioavailability curcumin particle formation. *International Journal of Biological Macromolecules*, 264, 129945.

NUTRITION AND HEALTH SCIENCES

Bednarski TK, Rahim M, Hasenour CM, Banerjee DR, Trenary IA, Wasserman DH, Young JD. *Pharmacological SERCA activation limits diet-induced steatohepatitis and restores liver metabolic function in mice.* J Lipid Res. 2024 Jun;65(6):100558. doi: 10.1016/j.jlr.2024.100558.

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PLANT PATHOLOGY

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PANHANDLE RESEARCH, EXTENSION & EDUCATION CENTER

Mijatović Scouten J, Smith A, Ellington AJ, Bryan NC, Harveson RM, Kvitko BH, Christner BC. 2025. “*Curtobacterium aetherium* sp. nov., a polyextremophilic plant pathogen isolated from the stratosphere.” *Microbiol Spectrum* 13 (5): 4-24. <https://doi.org/10.1128/spectrum.01774-24>

H. F. Speer, K. H. Wilke, and M. E. Drewnoski, “Effects of vitamin A supplementation on liver retinol concentrations of beef cows and their calves managed in confinement,” *Applied Animal Science* 40 (5):619-626 [https://www.appliedanimalscience.org/article/S2590-2865\(24\)00094-6/fulltext](https://www.appliedanimalscience.org/article/S2590-2865(24)00094-6/fulltext)

SCHOOL OF NATURAL RESOURCES

Corman, J.R. 2025. Calcium carbonate and phosphorus interactions in inland waters. *Limnology and Oceanography Letters* 10(2):158-178.

Shana M. Sundstrom, Tala Awada, Elena M. Bennett, Brandon Bestelmeyer, Jennifer Hodbod, Anna Pacheco, Sheri Spiegel, Craig R. Allen, Addressing key issues and knowledge gaps in resilience science for agriculture, *Agricultural Systems*, Volume 227, 2025,104335, ISSN 0308-521X, <https://doi.org/10.1016/j.agsy.2025.104335>.

Wang, R., Gamon, J.A., Hogan, K.F.E., Kellar, P.R. and Wedin, D.A. (2025), Prairie management practices influence biodiversity, productivity and surface-atmosphere feedbacks. *New Phytol*, 247: 562-576. <https://doi.org/10.1111/nph.70195>

STATISTICS

Beaulieu, C., Gallagher, C., Killick, R., Lund, R. and Shi, X., A recent surge in global warming is not detectable yet. *Commun Earth Environ* 5, 576 (2024). <https://doi.org/10.1038/s43247-024-01711-1>

“On an empirical likelihood-based solution to the approximate Bayesian computation problem” by Sanjay Chaudhuri, Subhroshekhar Ghosh, and Kim Cuc Pham, *Statistical Analysis and Data Mining: An ASA Data Science Journal*, 17(5): e11711, 2024.

SCHOOL OF VETERINARY MEDICINE AND BIOMEDICAL SCIENCES

Drozd M, Ritter JM, Samuelson JP, et al. Mortality associated with SARS-CoV-2 in nondomestic felids. *Veterinary Pathology*. 2024;61(4):609-620. doi:10.1177/03009858231225500

Barletta, R.G.; Bannantine, J.P.; Stabel, J.R.; Muthukrishnan, E.; Anderson, D.K.; Dutta, E.; Manthena, V.; Hanafy, M.; Zinniel, D.K. Mycobacterium avium subsp. paratuberculosis Candidate Vaccine Strains Are Pro-apoptotic in RAW 264.7 Murine Macrophages. *Vaccines* 2023, 11, 1085. <https://doi.org/10.3390/vaccines11061085>

TEXTILES, MERCHANDISING & FASHION DESIGN

Mu, B.N., Yu, X.Q., Shao, Y.Y., McBride, L., Hidalgo, H., and Yang*, Y.Q. Complete recycling of polymers and dyes from polyester/cotton blended textiles via cost-effective and destruction-minimized dissolution, swelling, precipitation, and separation. *Resources, Conservation & Recycling*. 199. 107275. 10 pgs. (December 2023).